



# Western Pond Turtles (*Clemmys marmorata*) in the Multiple Species Conservation Program Area

## Preliminary Survey Results 2002

U.S. Department of Interior  
U.S. Geological Survey



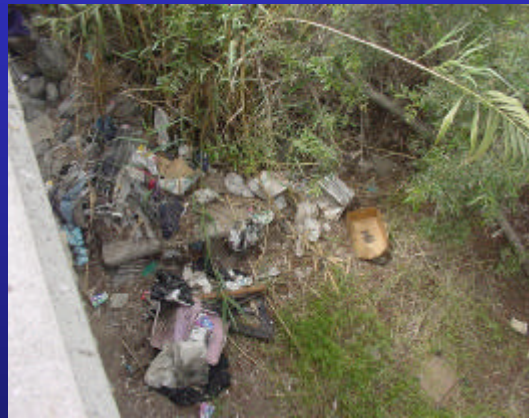








# Pond turtle habitat loss





# Undisturbed upland habitats are important for turtles

## Nests

- can be placed up to 400 meters from water

## Overwintering

- turtles overwinter up to 500 meters from water (Holland 1994) and may spend 2+ months per year away from the watercourse (Goodman 1997, Holland 1994, Rathbun et al. 2002)



# Objective

Attempt to detect pond turtles  
on public lands inside the  
MSCP area



# Site selection

- We attempted to visit as many areas containing aquatic habitat on County and City of San Diego Preserve Lands as possible



# Surveys

- Visual surveys of each site to assess it for potential suitability
  - Look for turtles and turtle habitat within survey reach or site
- Trapping surveys at sites deemed potentially suitable







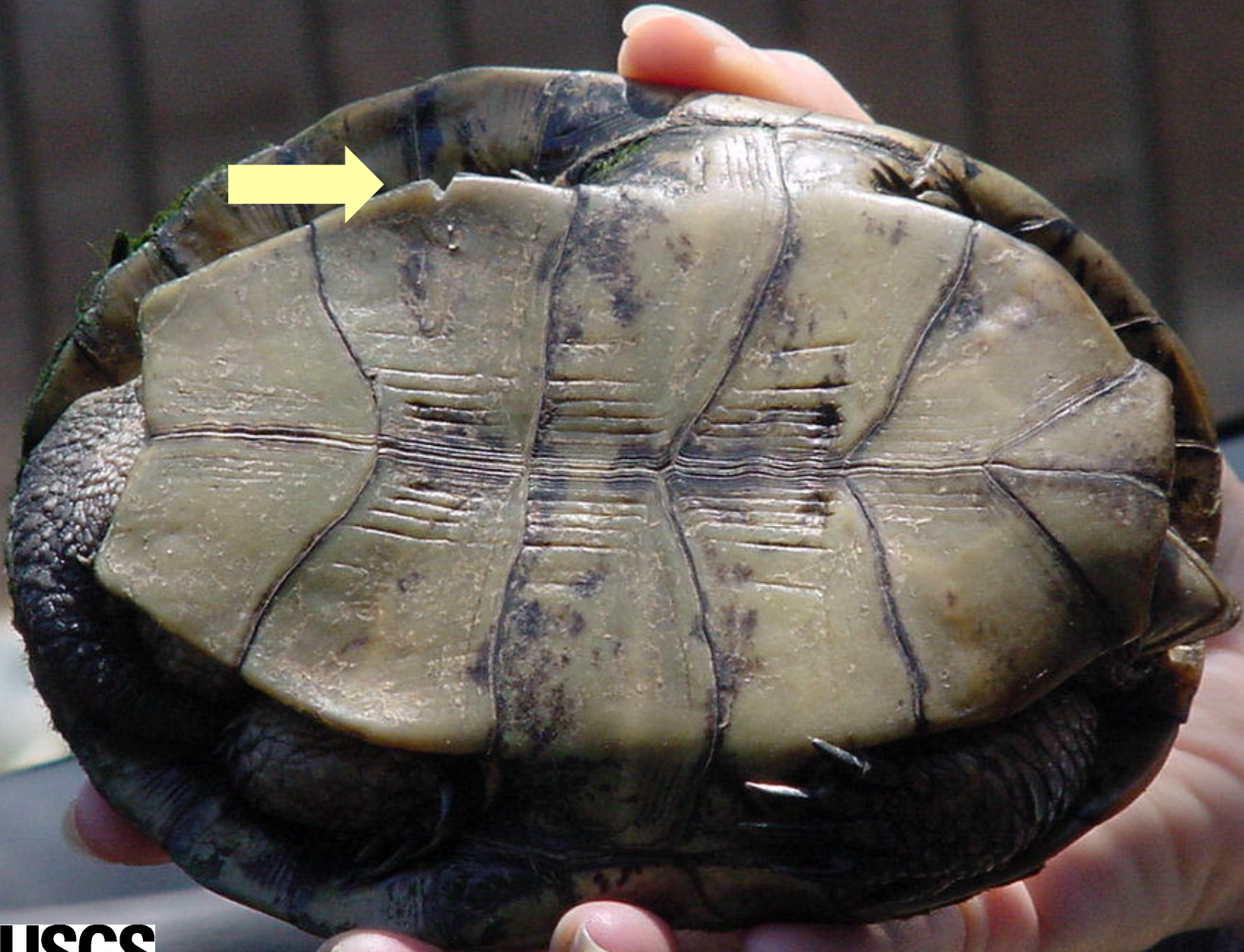


# Animal processing

- Shell measurements
- Weight
- Sex
- Deformities
- Injuries
- Assigned unique ID





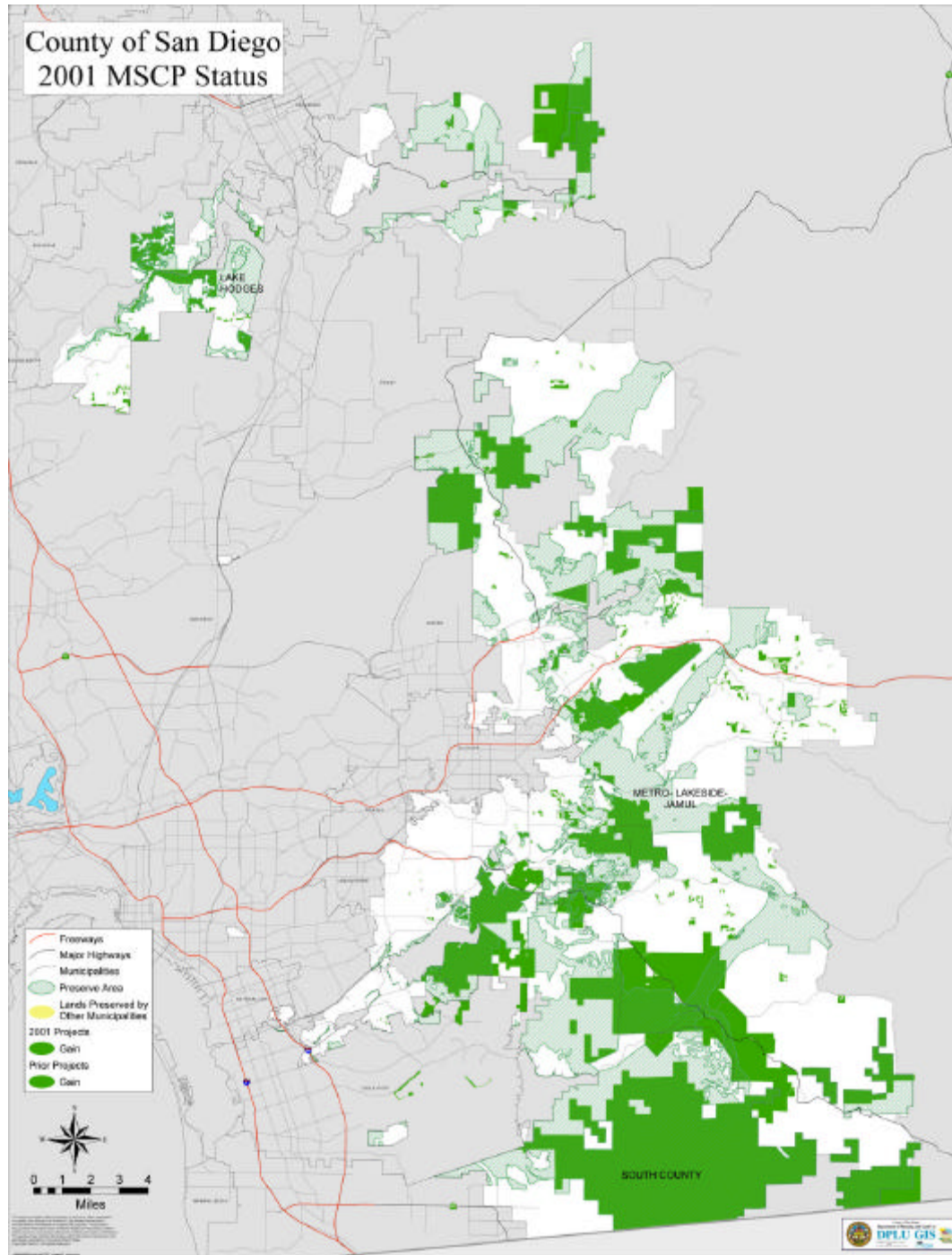


# 2002 Effort in MSCP

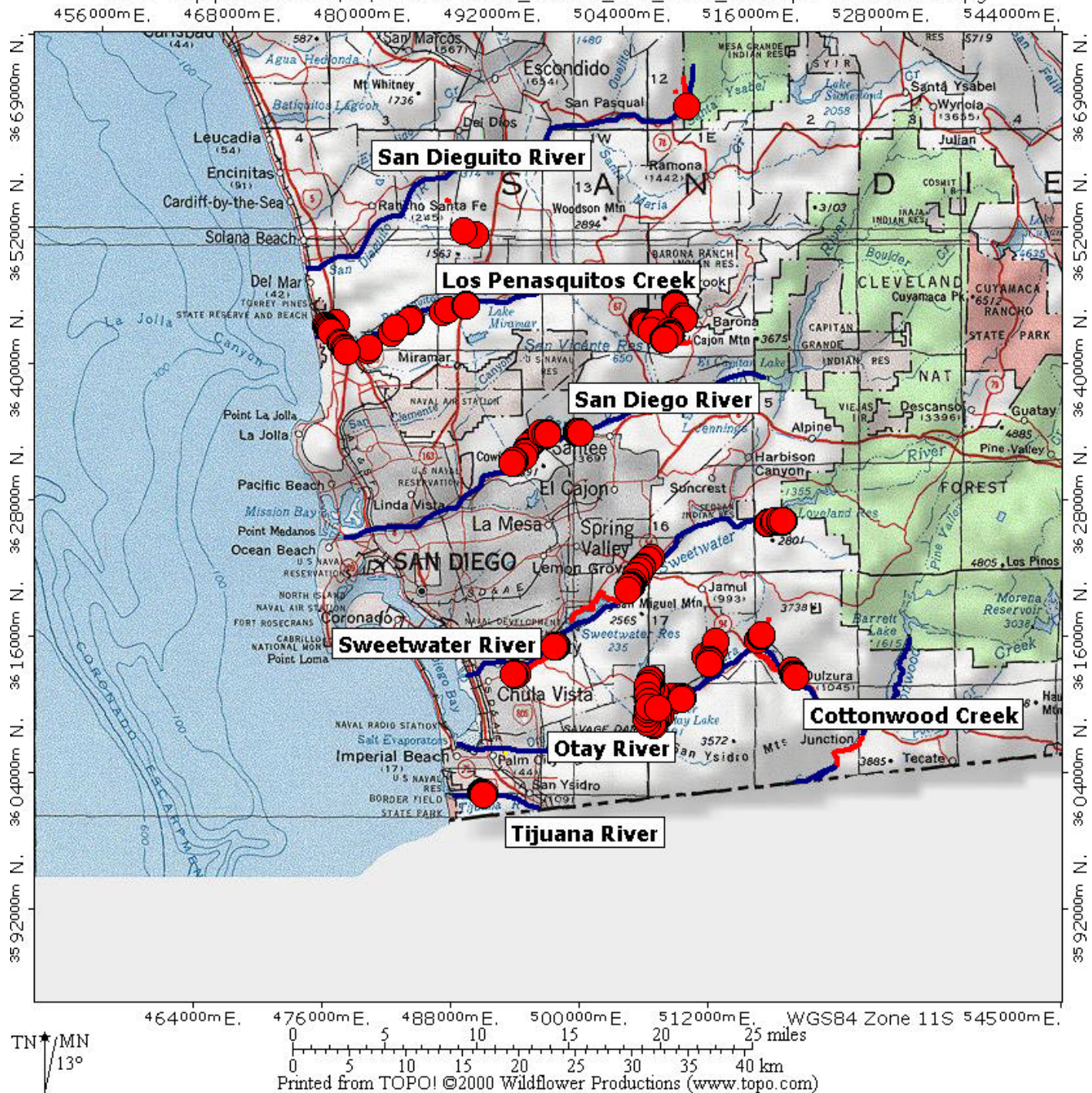
- 26 visual surveys conducted
  - 21 Sites deemed potentially suitable
- 18 sites trapped
- 747 trap days
- 19,391 trap hours



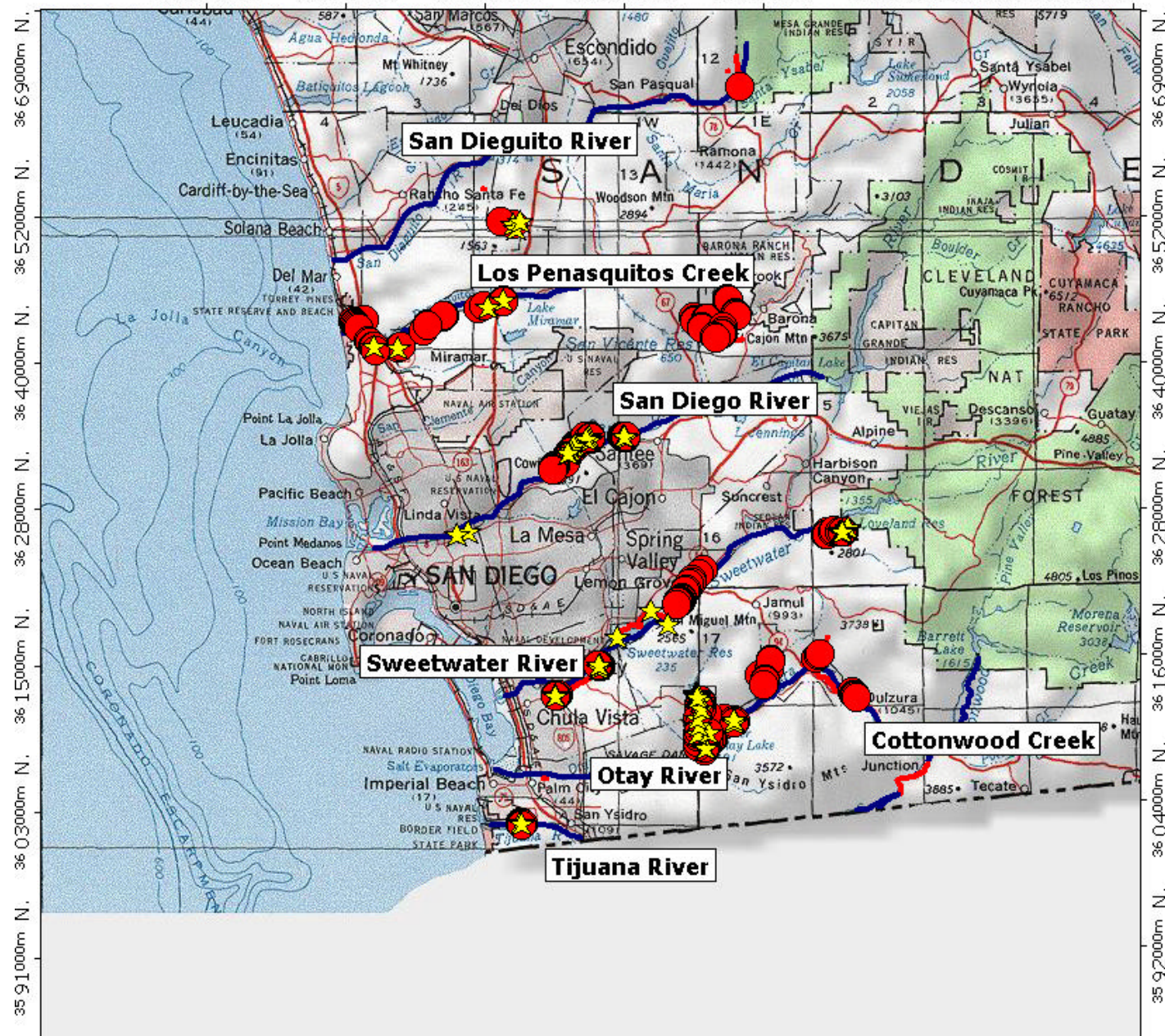
# County of San Diego 2001 MSCP Status



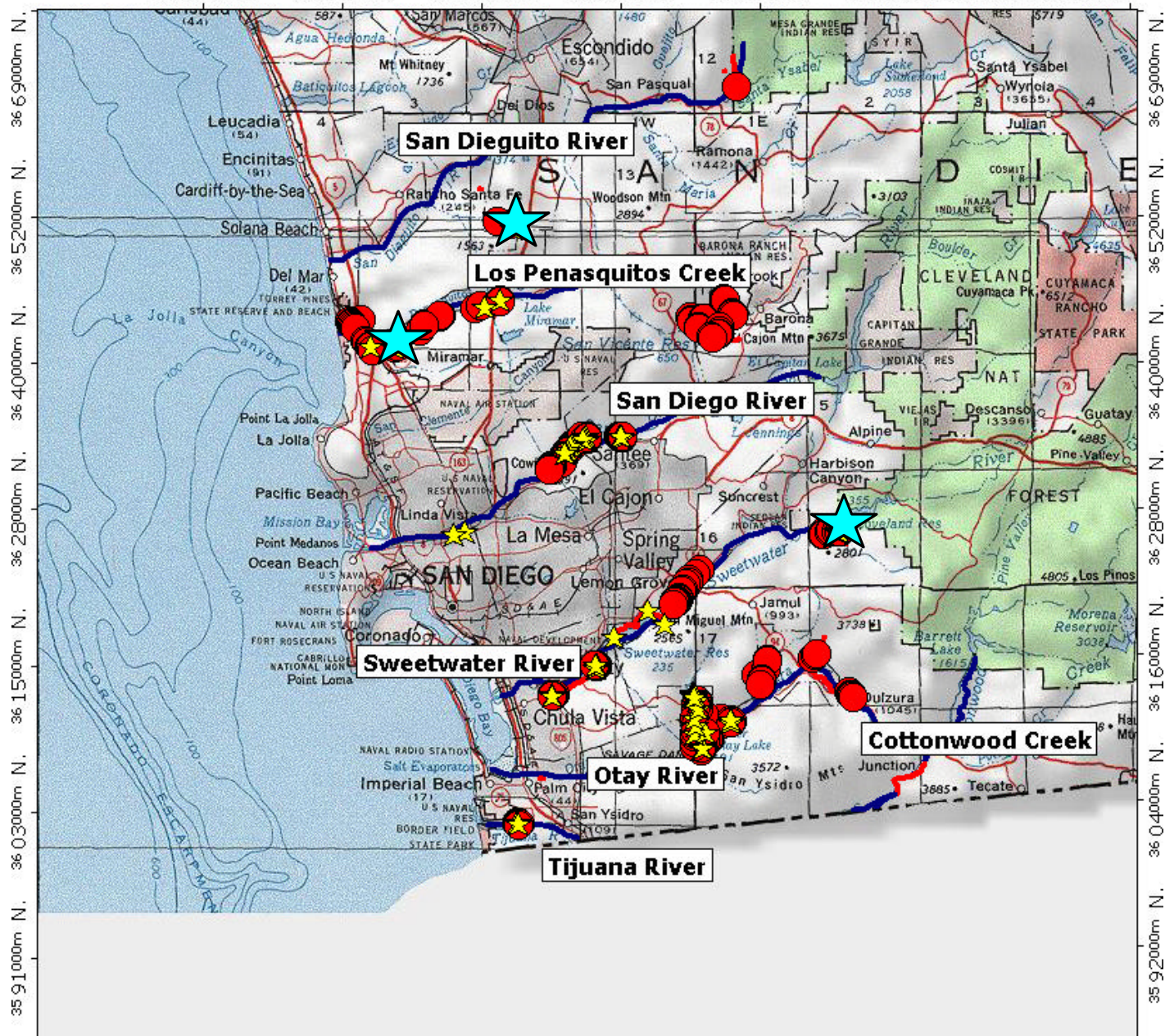










































# Threats of non-native turtles

- Vectors of diseases and parasites (Powler and Miller 1999)
- Compete for resources (Spinks et al. In Press)
- Higher reproductive potential in highly urbanized areas (Spinks et al. In Press)







# USGS

science for a changing world









# Preliminary recommendations

- Install educational signs in areas used by public (where pond turtles occur)
  - outline the ramifications of releasing pet turtles into these areas
  - offer alternatives to getting rid of unwanted pets (for example, provide contact information of Turtle and Tortoise Clubs)



# Preliminary recommendations

- Consider removing non-native turtles in areas where pond turtles occur
- Evaluate effect of game fish on western pond turtles
- Control bullfrogs where pond turtles occur



# Recommendations for research

- Use radio-telemetry to quantify extent of upland habitat use and to identify important areas for turtles (Garber and Burger 1995)




# General recommendations

- Consider upland habitats to be an integral component of the riparian system (Buhlmann and Gibbons 2001) and should be viewed as a requirement for the western pond turtle



# Getting the bigger picture inside the MSCP

 In 2002, USGS matched funding for additional sites outside of the scope of the funded project:

- Upper and Lower Otay Lakes
- Torrey Pines State Reserve
- Sweetwater Reservoir\*
- San Diego River along Mission Valley\*
- Bernardo Lakes\*

\*visually assessed only, no trapping conducted



# Evaluate additional sites in the future

- Additional surveys outside of the scope of this project may be warranted to gain a broader perspective of pond turtle distribution in the MSCP area



# Special Thanks

- County of San Diego
- California Department of Fish and Game
- City of San Diego
- Fish and Wildlife Service
- The Environmental Trust
- California State Parks

